

Mississippi Prepaid Affordable College Tuition Plan

Pricing Report
for the 2018/2019 Academic Year



August 10, 2018

Board of Trustees
Mississippi Prepaid Affordable College Tuition Plan
501 North West Street, Suite 1101
Jackson, MS 39201

Attention: Ms. Lynn Fitch, State Treasurer

Re: MPACT Pricing Report as of June 30, 2018

Dear Trustees:

Gabriel, Roeder, Smith & Company (GRS) has performed the pricing for the Mississippi Prepaid Affordable College Tuition Plan (MPACT) for fiscal year 2019. The purpose of this report is to set the Plan's pricing for future contracts in the Horizon Plan and the Weighted Average Tuition (applicable to Horizon and Legacy Plan) for the 2018/2019 academic year.

This report presents:

- A calculation of the Weighted Average Tuition (WAT) for the 2018/2019 academic year; and
- A calculation of the future pricing for new contracts in MPACT's Horizon Plan during the 2018/2019 academic year.

This report was prepared at the request of the MPACT Board and is intended for use by the MPACT Board and those designated or approved by the MPACT Board. This report may be provided to parties other than the MPACT Board only in its entirety and only with the permission of the MPACT Board. GRS is not responsible for unauthorized use of this report. This report should not be relied on for any purpose other than the purpose described above.

The pricing results set forth in this report are based upon data and information, furnished by MPACT, concerning Plan benefits, the Board's funding policy, and current tuition and enrollment information of Mississippi Colleges and Universities. We reviewed this information for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by MPACT.

There are currently no Actuarial Standards of Practice that specifically refer to prepaid tuition plans. We have followed the guidance from the Actuarial Standards of Practice on pensions due to its similar nature. The pricing calculations summarized in this report involve actuarial calculations that require assumptions

about future events. The major actuarial assumptions used in this analysis were adopted by and are the responsibility of the Plan and the Plan's Board. We have not performed a detailed experience study but have performed annual assumption reviews for the Board. Based on our limited analyses, we believe these assumptions are within a reasonable range and are in compliance with actuarial standards regarding similar actuarial calculations. The WAT and pricing calculations summarized in this report are also based on methods adopted by the Board. There is more than one set of reasonable methods for these calculations.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: Plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in Plan provisions or applicable law.

We believe that the actuarial methods and assumptions used in this report are reasonable and appropriate for the purpose for which they have been used. In addition, because it is not possible or practical to consider every possible contingency, we may use summary information, estimates or simplifications of calculations to facilitate the modeling of future events. We may also exclude factors or data that are deemed to be immaterial.

This report is not a recommendation to anyone to participate in MPACT. GRS makes no representations or warranties to any person participating in or considering participation in the Plan.

To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial pricing of the Mississippi Prepaid Affordable College Tuition Plan contracts for the 2018/2019 academic year based on the Board's funding policy and administrative rules.

James R. Sparks is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The signing individuals are independent of the plan sponsor.

Respectfully submitted,



Kenneth G. Alberts



James R. Sparks, ASA, MAAA

KGA/JRS:sc



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SECTION A

WEIGHTED AVERAGE TUITION

Weighted Average Tuition Development

The Weighted Average Tuition (WAT) is an average of the tuition charged by participating schools, weighted by their resident enrollment. It is the basis on which the costs of the program are established. In addition, for participants who chose private or out-of-state schools, the WAT is used to determine the benefit payable upon matriculation.

2018/2019 Weighted Average Tuition (WAT) Development for Universities

	2017 Fall Resident Student Enrollment	Computation of Weighting [^]	2018/2019 Tuition & Required Fees	Proportionate Share Based on Weighting
Alcorn State University	2,683	4.80%	\$ 7,114	\$ 341.47
Delta State University	3,152	5.64%	7,246	408.67
Jackson State University	6,404	11.46%	8,051	922.64
Mississippi State University	14,308	25.60%	8,650	2,214.40
Mississippi University for Women	2,346	4.20%	6,940	291.48
Mississippi Valley State University	1,835	3.28%	6,550	214.84
University of Mississippi	13,888	24.84%	8,654 #	2,149.65
University of Southern Mississippi	11,283	20.18%	8,624	1,740.32
Total	55,899	100.00%	2018/2019 WAT*	\$ 8,283
			2017/2018 WAT	\$ 7,927
			Increase over 2017/2018 WAT	4.5%

* Annual WAT is rounded to the nearest dollar.

Average Tuition & Required Fees for the University of Mississippi and the University of Mississippi Medical Center (\$8,660 and \$8,624 respectively) weighted by reported 2017 Fall enrollments (11,474 and 2,414 respectively).

[^] Total may not add due to rounding.

Per Credit Hour, based on 31 credit hours per year. \$267.19	Per Quarter Credit Hour, based on 31 credit hours per year for schools on a trimester academic calendar year. \$178.13
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Weighted Average Tuition Development

2018/2019 Weighted Average Tuition (WAT) Development for Community Colleges

	2017 Fall Resident Student Enrollment	Computation of Weighting [^]	2018/2019 Tuition & Required Fees	Proportionate Share Based on Weighting
Coahoma CC	1,893	2.74%	\$ 2,870	\$ 78.64
Copiah-Lincoln CC	2,966	4.29%	3,180	136.42
East Central CC	2,488	3.60%	2,900	104.40
East Mississippi CC	3,871	5.60%	3,490	195.44
Hinds CC	11,270	16.31%	3,140	512.13
Holmes CC	5,971	8.64%	3,110	268.70
Itawamba CC	5,082	7.36%	3,120	229.63
Jones County JC	4,361	6.31%	3,480	219.59
Meridian CC	3,325	4.81%	3,014	144.97
Mississippi Delta CC	2,191	3.17%	3,060	97.00
Mississippi Gulf Coast CC	8,565	12.40%	3,300	409.20
Northeast Mississippi CC	3,381	4.89%	3,370	164.79
Northwest Mississippi CC	7,390	10.70%	3,000	321.00
Pearl River CC	4,564	6.61%	3,410	225.40
Southwest Mississippi CC	1,777	2.57%	3,280	84.30
Total	69,095	100.00%	2018/2019 WAT*	\$ 3,192
			2017/2018 WAT	\$ 3,115
			Increase over 2017/2018 WAT	2.5%

* Annual WAT is rounded to the nearest dollar.

[^] Total may not add due to rounding.

Per Credit Hour, based on 31 credit hours per year.	Per Quarter Credit Hour, based on 31 credit hours per year for schools on a trimester academic calendar year.
\$102.97	\$68.64

SECTION B

PRICING

2018-2019 Academic Year – Four-Year Senior College/University Plan

Net Investment Return for Present Value of Benefits	6.30%
Interest Rate for Contract Payments	7.00%
University WAT	\$ 8,283
Community College WAT	N/A
University Tuition Increase Assumption	See Table
Community College Tuition Increase Assumption	N/A
Bias Load for Universities	2.6%
Bias Load for Community Colleges	N/A
Additional Risk Premium	2.0%
Admin Expenses	5.0%
Credit hours granted for each year purchased	31.00
Average Credit Hours Utilized per Semester	12.80
Tuition Payments per year	2 -- approx mid Sept. and mid Feb.

University benefits payable for less than 12 credit hours in a semester are based on 1/2 WAT divided by 12 and multiplied by credits reimbursed

Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits (PVB)	2018/2019 Proposed Price	Increase Due to Pricing Floor	PVB Valuation Assumptions	Estimated Margin	2017/2018 Price	Year to Year Increase
12th Grade	2019	8.50%	\$ 41,777	\$ 48,799	\$ -	\$ 41,181	18.50%	\$ 46,521	4.9%
11th Grade	2020	8.50%	42,642	49,809	-	40,871	21.87%	47,570	4.7%
10th Grade	2021	8.50%	43,229	50,495	-	40,564	24.48%	48,310	4.5%
9th Grade	2022	8.50%	43,495	50,805	-	40,258	26.20%	48,686	4.4%
8th Grade	2023	8.50%	43,437	50,738	-	39,955	26.99%	48,698	4.2%
7th Grade	2024	8.50%	43,054	50,290	-	39,655	26.82%	48,341	4.0%
6th Grade	2025	4.55%	42,346	49,463	-	39,356	25.68%	47,614	3.9%
5th Grade	2026	4.55%	41,648	48,648	-	39,060	24.55%	46,899	3.7%
4th Grade	2027	4.55%	40,868	47,737	-	38,766	23.14%	46,056	3.6%
3rd Grade	2028	4.55%	39,995	46,717	-	38,474	21.42%	45,073	3.6%
2nd Grade	2029	4.55%	39,033	45,593	-	38,185	19.40%	43,956	3.7%
1st Grade	2030	4.55%	37,987	44,372	-	37,897	17.09%	42,711	3.9%
Kindergarten	2031	3.15%	36,861	43,056	-	37,612	14.47%	41,346	4.1%
4 Year Old	2032	3.15%	35,769	41,781	-	37,329	11.93%	40,073	4.3%
3 Year Old	2033	3.15%	34,709	40,543	-	37,048	9.43%	38,853	4.3%
2 Year Old	2034	3.15%	33,680	39,341	-	36,769	7.00%	37,670	4.4%
1 Year Old	2035	3.15%	32,682	38,175	-	36,493	4.61%	36,523	4.5%
Newborn	2036	3.15%	31,714	37,044	-	36,218	2.28%	35,448	4.5%

2018-2019 Academic Year – Four-Year Senior College/University Plan (Concluded)

Accounting for an average usage of 12.8 credit hours per semester and 9.4 semesters to graduate														
Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits	Lump Sum Single Payment	Monthly Extended Plan Monthly Payment				Monthly 5-Year Plan - Monthly Payment			Monthly 8-Year Plan - Monthly Payment		
					Number of Payments	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
						\$0	\$ 2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	2019	8.50%	\$ 41,777	\$ 48,799	4	\$12,373	\$11,866	\$11,105	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	2020	8.50%	42,642	49,809	16	3,265	3,134	2,937	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	2021	8.50%	43,229	50,495	28	1,955	1,878	1,761	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	2022	8.50%	43,495	50,805	40	1,423	1,367	1,283	N/A	N/A	N/A	N/A	N/A	N/A
8th Grade	2023	8.50%	43,437	50,738	52	1,129	1,084	1,018	N/A	N/A	N/A	N/A	N/A	N/A
7th Grade	2024	8.50%	43,054	50,290	64	939	901	845	\$991	\$951	\$892	N/A	N/A	N/A
6th Grade	2025	4.55%	42,346	49,463	76	802	770	721	974	935	876	N/A	N/A	N/A
5th Grade	2026	4.55%	41,648	48,648	88	703	674	631	958	919	860	N/A	N/A	N/A
4th Grade	2027	4.55%	40,868	47,737	100	626	600	561	940	901	842	\$646	\$619	\$578
3rd Grade	2028	4.55%	39,995	46,717	112	564	540	504	920	881	822	632	605	564
2nd Grade	2029	4.55%	39,033	45,593	124	513	490	456	898	859	800	617	590	549
1st Grade	2030	4.55%	37,987	44,372	136	469	447	416	874	835	776	600	573	533
Kindergarten	2031	3.15%	36,861	43,056	148	430	410	380	848	809	750	582	555	515
4 Year Old	2032	3.15%	35,769	41,781	160	398	378	350	823	784	725	565	538	498
3 Year Old	2033	3.15%	34,709	40,543	172	369	351	324	799	759	700	548	521	481
2 Year Old	2034	3.15%	33,680	39,341	184	345	327	301	775	736	677	532	505	465
1 Year Old	2035	3.15%	32,682	38,175	196	323	306	280	752	713	654	516	489	449
Newborn	2036	3.15%	31,714	37,044	208	303	287	262	730	690	631	501	474	433

Accounting for an average usage of 12.8 credit hours per semester and 9.4 semesters to graduate												
Age/Grade of Beneficiary as of Sept. 1, 2018	Monthly 10-Year Plan - Monthly Payment			Monthly 12-Year Plan - Monthly Payment			Annual 3-Year Plan - Annual Payment			Annual 5-Year Plan - Annual Payment		
	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	N/A	N/A	N/A	N/A	N/A	N/A	\$19,359	\$18,597	\$17,454	N/A	N/A	N/A
8th Grade	N/A	N/A	N/A	N/A	N/A	N/A	19,334	18,572	17,429	N/A	N/A	N/A
7th Grade	N/A	N/A	N/A	N/A	N/A	N/A	19,163	18,401	17,258	\$12,265	\$11,777	\$11,046
6th Grade	N/A	N/A	N/A	N/A	N/A	N/A	18,848	18,086	16,943	12,064	11,576	10,844
5th Grade	N/A	N/A	N/A	N/A	N/A	N/A	18,537	17,775	16,632	11,865	11,377	10,645
4th Grade	N/A	N/A	N/A	N/A	N/A	N/A	18,190	17,428	16,285	11,643	11,155	10,423
3rd Grade	N/A	N/A	N/A	N/A	N/A	N/A	17,802	17,039	15,896	11,394	10,906	10,174
2nd Grade	\$524	\$501	\$467	N/A	N/A	N/A	17,373	16,611	15,468	11,120	10,632	9,900
1st Grade	510	487	453	N/A	N/A	N/A	16,908	16,146	15,003	10,822	10,334	9,602
Kindergarten	495	472	438	\$438	\$418	\$387	16,407	15,644	14,501	10,501	10,013	9,282
4 Year Old	480	457	423	425	405	374	15,921	15,159	14,015	10,190	9,702	8,971
3 Year Old	466	443	409	412	392	361	15,449	14,687	13,544	9,888	9,400	8,669
2 Year Old	452	429	395	400	380	349	14,991	14,229	13,086	9,595	9,107	8,375
1 Year Old	439	416	382	388	368	337	14,547	13,785	12,641	9,311	8,823	8,091
Newborn	426	403	369	377	356	326	14,116	13,354	12,210	9,035	8,547	7,815

2018-2019 Academic Year – Two-Year Senior College/University Plan

Net Investment Return for Present Value of Benefits	6.30%
Interest Rate for Contract Payments	7.00%
University WAT	\$ 8,283
Community College WAT	N/A
University Tuition Increase Assumption	See Table
Community College Tuition Increase Assumption	N/A
Bias Load for Universities	2.6%
Bias Load for Community Colleges	N/A
Additional Risk Premium	2.0%
Admin Expenses	5.0%
Credit hours granted for each year purchased	31.00
Average Credit Hours Utilized per Semester	12.80
Tuition Payments per year	2 -- approx mid Sept. and mid Feb.

University benefits payable for less than 12 credit hours in a semester are based on 1/2 WAT divided by 12 and multiplied by credits reimbursed

Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits (PVB)	2018/2019 Proposed Price	Increase Due to Pricing Floor	PVB Valuation Assumptions	Estimated Margin	2017/2018 Price	Year to Year Increase
12th Grade	2019	8.50%	\$ 20,569	\$ 24,026	\$ -	\$ 20,956	14.65%	\$ 22,857	5.1%
11th Grade	2020	8.50%	20,995	24,524	-	20,798	17.92%	23,372	4.9%
10th Grade	2021	8.50%	21,429	25,031	-	20,642	21.26%	23,899	4.7%
9th Grade	2022	8.50%	21,873	25,549	-	20,486	24.71%	24,438	4.5%
8th Grade	2023	8.50%	22,171	25,897	-	20,332	27.37%	24,814	4.4%
7th Grade	2024	8.50%	22,138	25,859	-	20,179	28.15%	24,817	4.2%
6th Grade	2025	4.55%	21,774	25,434	-	20,027	27.00%	24,444	4.1%
5th Grade	2026	4.55%	21,416	25,015	-	19,877	25.85%	24,076	3.9%
4th Grade	2027	4.55%	21,063	24,603	-	19,727	24.72%	23,713	3.8%
3rd Grade	2028	4.55%	20,716	24,198	-	19,579	23.59%	23,357	3.6%
2nd Grade	2029	4.55%	20,326	23,742	-	19,431	22.19%	22,934	3.5%
1st Grade	2030	4.55%	19,834	23,168	-	19,285	20.13%	22,361	3.6%
Kindergarten	2031	3.15%	19,246	22,481	-	19,140	17.46%	21,647	3.9%
4 Year Old	2032	3.15%	18,676	21,815	-	18,996	14.84%	20,956	4.1%
3 Year Old	2033	3.15%	18,122	21,168	-	18,853	12.28%	20,309	4.2%
2 Year Old	2034	3.15%	17,585	20,541	-	18,711	9.78%	19,690	4.3%
1 Year Old	2035	3.15%	17,064	19,932	-	18,570	7.33%	19,091	4.4%
Newborn	2036	3.15%	16,559	19,342	-	18,430	4.95%	18,509	4.5%

2018-2019 Academic Year – Two-Year Senior College/University Plan (Concluded)

Accounting for an average usage of 12.8 credit hours per semester and 9.4 semesters to graduate														
Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits	Lump Sum Single Payment	Monthly Extended Plan Monthly Payment				Monthly 5-Year Plan - Monthly Payment			Monthly 8-Year Plan - Monthly Payment		
					Number of Payments	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
						\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	2019	8.50%	\$ 20,569	\$ 24,026	4	\$6,092	\$5,585	\$4,824	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	2020	8.50%	20,995	24,524	16	1,607	1,476	1,280	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	2021	8.50%	21,429	25,031	28	969	892	776	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	2022	8.50%	21,873	25,549	40	715	659	575	N/A	N/A	N/A	N/A	N/A	N/A
8th Grade	2023	8.50%	22,171	25,897	52	576	532	465	N/A	N/A	N/A	N/A	N/A	N/A
7th Grade	2024	8.50%	22,138	25,859	64	483	445	389	\$509	\$470	\$411	N/A	N/A	N/A
6th Grade	2025	4.55%	21,774	25,434	76	413	380	332	501	462	403	N/A	N/A	N/A
5th Grade	2026	4.55%	21,416	25,015	88	362	333	289	493	453	394	N/A	N/A	N/A
4th Grade	2027	4.55%	21,063	24,603	100	323	297	257	485	445	386	\$333	\$306	\$265
3rd Grade	2028	4.55%	20,716	24,198	112	292	268	232	477	437	378	327	300	260
2nd Grade	2029	4.55%	20,326	23,742	124	267	244	211	468	428	369	321	294	254
1st Grade	2030	4.55%	19,834	23,168	136	245	224	192	456	417	358	313	286	246
Kindergarten	2031	3.15%	19,246	22,481	148	225	205	175	443	403	344	304	277	236
4 Year Old	2032	3.15%	18,676	21,815	160	208	189	160	430	390	331	295	268	227
3 Year Old	2033	3.15%	18,122	21,168	172	193	175	147	417	378	319	286	259	219
2 Year Old	2034	3.15%	17,585	20,541	184	180	162	136	405	365	306	278	251	210
1 Year Old	2035	3.15%	17,064	19,932	196	169	152	126	393	353	294	270	243	202
Newborn	2036	3.15%	16,559	19,342	208	158	142	117	381	342	283	262	235	194

Accounting for an average usage of 12.8 credit hours per semester and 9.4 semesters to graduate												
Age/Grade of Beneficiary as of Sept. 1, 2018	Monthly 10-Year Plan - Monthly Payment			Monthly 12-Year Plan - Monthly Payment			Annual 3-Year Plan - Annual Payment			Annual 5-Year Plan - Annual Payment		
	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	N/A	N/A	N/A	N/A	N/A	N/A	\$9,735	\$8,973	\$7,830	N/A	N/A	N/A
8th Grade	N/A	N/A	N/A	N/A	N/A	N/A	9,868	9,106	7,963	N/A	N/A	N/A
7th Grade	N/A	N/A	N/A	N/A	N/A	N/A	9,854	9,092	7,948	\$6,307	\$5,819	\$5,087
6th Grade	N/A	N/A	N/A	N/A	N/A	N/A	9,692	8,930	7,786	6,203	5,715	4,984
5th Grade	N/A	N/A	N/A	N/A	N/A	N/A	9,532	8,770	7,627	6,101	5,613	4,881
4th Grade	N/A	N/A	N/A	N/A	N/A	N/A	9,375	8,613	7,470	6,000	5,513	4,781
3rd Grade	N/A	N/A	N/A	N/A	N/A	N/A	9,221	8,459	7,315	5,902	5,414	4,682
2nd Grade	\$273	\$250	\$216	N/A	N/A	N/A	9,047	8,285	7,142	5,790	5,303	4,571
1st Grade	266	243	209	N/A	N/A	N/A	8,828	8,066	6,923	5,650	5,163	4,431
Kindergarten	259	236	201	\$229	\$208	\$178	8,566	7,804	6,661	5,483	4,995	4,263
4 Year Old	251	228	193	222	202	171	8,313	7,551	6,407	5,320	4,833	4,101
3 Year Old	243	220	186	215	195	164	8,066	7,304	6,161	5,163	4,675	3,943
2 Year Old	236	213	179	209	189	158	7,827	7,065	5,922	5,010	4,522	3,790
1 Year Old	229	206	172	203	182	152	7,595	6,833	5,690	4,861	4,373	3,642
Newborn	222	199	165	197	176	146	7,370	6,608	5,465	4,717	4,230	3,498

2018-2019 Academic Year – One-Year Senior College/University Plan

Net Investment Return for Present Value of Benefits 6.30%

Interest Rate for Contract Payments 7.00%

University WAT \$ 8,283

Community College WAT N/A

University Tuition Increase Assumption See Table

Community College Tuition Increase Assumption N/A

Bias Load for Universities 2.6%

Bias Load for Community Colleges N/A

Additional Risk Premium 2.0%

Admin Expenses 5.0%

Credit hours granted for each year purchased 31.00

Average Credit Hours Utilized per Semester 12.80

Tuition Payments per year 2 -- approx mid Sept. and mid Feb.

University benefits payable for less than 12 credit hours in a semester are based on 1/2 WAT divided by 12 and multiplied by credits reimbursed

Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits (PVB)	2018/2019 Proposed Price	Increase Due to Pricing Floor	PVB Valuation Assumptions	Estimated Margin	2017/2018 Price	Year to Year Increase
12th Grade	2019	8.50%	\$ 10,160	\$ 11,868	\$ -	\$ 10,525	12.76%	\$ 11,277	5.2%
11th Grade	2020	8.50%	10,370	12,113	-	10,446	15.96%	11,531	5.0%
10th Grade	2021	8.50%	10,585	12,364	-	10,367	19.26%	11,791	4.9%
9th Grade	2022	8.50%	10,804	12,620	-	10,289	22.66%	12,058	4.7%
8th Grade	2023	8.50%	11,027	12,880	-	10,212	26.13%	12,330	4.5%
7th Grade	2024	8.50%	11,178	13,057	-	10,135	28.83%	12,519	4.3%
6th Grade	2025	4.55%	10,994	12,842	-	10,059	27.67%	12,332	4.1%
5th Grade	2026	4.55%	10,813	12,630	-	9,983	26.52%	12,146	4.0%
4th Grade	2027	4.55%	10,635	12,422	-	9,908	25.37%	11,964	3.8%
3rd Grade	2028	4.55%	10,460	12,218	-	9,833	24.26%	11,783	3.7%
2nd Grade	2029	4.55%	10,288	12,017	-	9,759	23.14%	11,606	3.5%
1st Grade	2030	4.55%	10,094	11,791	-	9,686	21.73%	11,395	3.5%
Kindergarten	2031	3.15%	9,795	11,441	-	9,613	19.02%	11,032	3.7%
4 Year Old	2032	3.15%	9,504	11,101	-	9,540	16.36%	10,679	4.0%
3 Year Old	2033	3.15%	9,223	10,773	-	9,469	13.77%	10,340	4.2%
2 Year Old	2034	3.15%	8,949	10,453	-	9,397	11.24%	10,025	4.3%
1 Year Old	2035	3.15%	8,684	10,144	-	9,327	8.76%	9,720	4.4%
Newborn	2036	3.15%	8,427	9,843	-	9,256	6.34%	9,424	4.4%

2018-2019 Academic Year – One-Year Senior College/University Plan (Concluded)

Accounting for an average usage of 12.8 credit hours per semester and 9.4 semesters to graduate														
Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits	Lump Sum Single Payment	Monthly Extended Plan Monthly Payment				Monthly 5-Year Plan - Monthly Payment			Monthly 8-Year Plan - Monthly Payment		
					Number of Payments	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
						\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	2019	8.50%	\$10,160	\$ 11,868	4	\$3,009	\$2,502	\$1,741	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	2020	8.50%	10,370	12,113	16	794	663	466	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	2021	8.50%	10,585	12,364	28	479	401	285	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	2022	8.50%	10,804	12,620	40	353	297	213	N/A	N/A	N/A	N/A	N/A	N/A
8th Grade	2023	8.50%	11,027	12,880	52	287	242	175	N/A	N/A	N/A	N/A	N/A	N/A
7th Grade	2024	8.50%	11,178	13,057	64	244	206	150	\$257	\$218	\$159	N/A	N/A	N/A
6th Grade	2025	4.55%	10,994	12,842	76	208	176	127	253	214	154	N/A	N/A	N/A
5th Grade	2026	4.55%	10,813	12,630	88	183	154	110	249	209	150	N/A	N/A	N/A
4th Grade	2027	4.55%	10,635	12,422	100	163	137	97	245	205	146	\$168	\$141	\$100
3rd Grade	2028	4.55%	10,460	12,218	112	148	123	87	241	201	142	165	138	98
2nd Grade	2029	4.55%	10,288	12,017	124	135	113	79	237	197	138	163	135	95
1st Grade	2030	4.55%	10,094	11,791	136	124	103	72	232	193	134	159	132	92
Kindergarten	2031	3.15%	9,795	11,441	148	114	94	64	225	186	127	155	128	87
4 Year Old	2032	3.15%	9,504	11,101	160	106	87	58	219	179	120	150	123	83
3 Year Old	2033	3.15%	9,223	10,773	172	98	80	53	212	173	114	146	119	78
2 Year Old	2034	3.15%	8,949	10,453	184	92	74	48	206	167	107	141	114	74
1 Year Old	2035	3.15%	8,684	10,144	196	86	69	43	200	160	101	137	110	70
Newborn	2036	3.15%	8,427	9,843	208	81	64	40	194	155	95	133	106	66

Accounting for an average usage of 12.8 credit hours per semester and 9.4 semesters to graduate												
Age/Grade of Beneficiary as of Sept. 1, 2018	Monthly 10-Year Plan - Monthly Payment			Monthly 12-Year Plan - Monthly Payment			Annual 3-Year Plan - Annual Payment			Annual 5-Year Plan - Annual Payment		
	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	N/A	N/A	N/A	N/A	N/A	N/A	\$4,809	\$4,047	\$2,904	N/A	N/A	N/A
8th Grade	N/A	N/A	N/A	N/A	N/A	N/A	4,908	4,146	3,003	N/A	N/A	N/A
7th Grade	N/A	N/A	N/A	N/A	N/A	N/A	4,975	4,213	3,070	\$3,184	\$2,697	\$1,965
6th Grade	N/A	N/A	N/A	N/A	N/A	N/A	4,893	4,131	2,988	3,132	2,644	1,913
5th Grade	N/A	N/A	N/A	N/A	N/A	N/A	4,813	4,051	2,907	3,080	2,593	1,861
4th Grade	N/A	N/A	N/A	N/A	N/A	N/A	4,733	3,971	2,828	3,030	2,542	1,810
3rd Grade	N/A	N/A	N/A	N/A	N/A	N/A	4,656	3,894	2,750	2,980	2,492	1,760
2nd Grade	\$138	\$115	\$81	N/A	N/A	N/A	4,579	3,817	2,674	2,931	2,443	1,711
1st Grade	136	113	78	N/A	N/A	N/A	4,493	3,731	2,588	2,876	2,388	1,656
Kindergarten	132	109	74	\$116	\$96	\$66	4,360	3,598	2,454	2,790	2,303	1,571
4 Year Old	128	105	70	113	93	62	4,230	3,468	2,325	2,707	2,220	1,488
3 Year Old	124	101	66	110	89	59	4,105	3,343	2,200	2,627	2,140	1,408
2 Year Old	120	97	63	106	86	55	3,983	3,221	2,078	2,549	2,062	1,330
1 Year Old	117	94	59	103	83	52	3,865	3,103	1,960	2,474	1,986	1,255
Newborn	113	90	56	100	80	49	3,751	2,989	1,845	2,401	1,913	1,181

2018-2019 Academic Year – Two-Year Community College and Two-Year Senior College/University Plan

Net Investment Return for Present Value of Benefits	6.30%
Interest Rate for Contract Payments	7.00%
University WAT	\$ 8,283
Community College WAT	\$ 3,192
University Tuition Increase Assumption	See Table
Community College Tuition Increase Assumption	See Table
Average Bias Load	1.8%
Additional Risk Premium	1.4%
Admin Expenses	5.0%
Credit hours granted for each year purchased	31.00
Average Credit Hours Utilized per Semester	12.80/11.90
Tuition Payments per year	2 -- approx mid Sept. and mid Feb.
University benefits payable for less than 12 credit hours in a semester are based on 1/2 WAT divided by 12 and multiplied by credits reimbursed	
Community College benefits payable for less than 12 credit hours in a semester are based on 1/2 WAT divided by 11 and multiplied by credits reimbursed (accounts for the discount once 12 credit hours are obtained)	

Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Univ Annual Tuition Increase	CC Annual Tuition Increase	Present Value of Benefits (PVB)	2018/2019 Proposed Price	Increase Due to Pricing Floor	PVB Valuation Assumptions	Estimated Margin	2017/2018 Price	Year to Year Increase
12th Grade	2019	8.50%	8.15%	\$ 30,288	\$ 34,896	\$ -	\$ 28,850	20.96%	\$ 33,584	3.9%
11th Grade	2020	8.50%	8.15%	30,732	35,408	-	28,594	23.83%	34,124	3.8%
10th Grade	2021	8.50%	8.15%	30,849	35,543	-	28,340	25.42%	34,299	3.6%
9th Grade	2022	8.50%	8.15%	30,636	35,297	-	28,088	25.67%	34,103	3.5%
8th Grade	2023	8.50%	8.15%	30,351	34,969	-	27,839	25.61%	33,827	3.4%
7th Grade	2024	8.50%	8.15%	29,946	34,502	-	27,592	25.04%	33,413	3.3%
6th Grade	2025	4.55%	4.15%	29,419	33,895	-	27,347	23.94%	32,865	3.1%
5th Grade	2026	4.55%	4.15%	28,852	33,242	-	27,105	22.64%	32,253	3.1%
4th Grade	2027	4.55%	4.15%	28,188	32,477	-	26,865	20.89%	31,498	3.1%
3rd Grade	2028	4.55%	4.15%	27,432	31,606	-	26,627	18.70%	30,606	3.3%
2nd Grade	2029	4.55%	4.15%	26,682	30,742	-	26,391	16.49%	29,724	3.4%
1st Grade	2030	4.55%	4.15%	25,929	29,874	-	26,158	14.21%	28,844	3.6%
Kindergarten	2031	3.15%	3.35%	25,167	28,996	-	25,927	11.84%	27,980	3.6%
4 Year Old	2032	3.15%	3.35%	24,406	28,119	-	25,698	9.42%	27,178	3.5%
3 Year Old	2033	3.15%	3.35%	23,649	27,247	-	25,471	6.97%	26,439	3.1%
2 Year Old	2034	3.15%	3.35%	22,907	26,392	-	25,254	4.51%	25,717	2.6%
1 Year Old	2035	3.15%	3.35%	22,177	25,551	-	25,051	2.00%	25,016	2.1%
Newborn	2036	3.15%	3.35%	21,457	24,722	-	24,862	-0.56%	24,335	1.6%

2018-2019 Academic Year – Two-Year Community College and Two-Year Senior College/University Plan (Concluded)

Accounting for an average usage of 11.9/12.8 credit hours per semester															
Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Univ Annual Tuition Increase	CC Annual Tuition Increase	Present Value of Benefits	Lump Sum Single Payment	Monthly Extended Plan Monthly Payment				Monthly 5-Year Plan - Monthly Payment			Monthly 8-Year Plan - Monthly Payment		
						Number of Payments	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
							\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	2019	8.50%	8.15%	\$ 30,288	\$ 34,896	4	\$8,848	\$8,341	\$7,580	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	2020	8.50%	8.15%	30,732	35,408	16	2,321	2,190	1,993	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	2021	8.50%	8.15%	30,849	35,543	28	1,376	1,299	1,183	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	2022	8.50%	8.15%	30,636	35,297	40	988	932	848	N/A	N/A	N/A	N/A	N/A	N/A
8th Grade	2023	8.50%	8.15%	30,351	34,969	52	778	734	667	N/A	N/A	N/A	N/A	N/A	N/A
7th Grade	2024	8.50%	8.15%	29,946	34,502	64	644	607	551	\$680	\$640	\$581	N/A	N/A	N/A
6th Grade	2025	4.55%	4.15%	29,419	33,895	76	550	517	469	668	628	569	N/A	N/A	N/A
5th Grade	2026	4.55%	4.15%	28,852	33,242	88	481	452	408	655	615	556	N/A	N/A	N/A
4th Grade	2027	4.55%	4.15%	28,188	32,477	100	426	400	360	640	600	541	\$439	\$412	\$372
3rd Grade	2028	4.55%	4.15%	27,432	31,606	112	382	358	321	623	583	524	428	400	360
2nd Grade	2029	4.55%	4.15%	26,682	30,742	124	346	323	289	606	566	507	416	389	348
1st Grade	2030	4.55%	4.15%	25,929	29,874	136	315	294	263	589	549	490	404	377	336
Kindergarten	2031	3.15%	3.35%	25,167	28,996	148	290	270	240	571	532	473	392	365	325
4 Year Old	2032	3.15%	3.35%	24,406	28,119	160	268	248	220	554	515	455	380	353	313
3 Year Old	2033	3.15%	3.35%	23,649	27,247	172	248	230	203	537	497	438	369	342	301
2 Year Old	2034	3.15%	3.35%	22,907	26,392	184	231	214	187	520	481	421	357	330	289
1 Year Old	2035	3.15%	3.35%	22,177	25,551	196	216	199	174	503	464	405	346	319	278
Newborn	2036	3.15%	3.35%	21,457	24,722	208	202	186	161	487	448	389	334	307	267

Accounting for an average usage of 11.9/12.8 credit hours per semester											
Age/Grade of Beneficiary as of Sept. 1, 2018	Monthly 10-Year Plan - Monthly Payment			Monthly 12-Year Plan - Monthly Payment			Annual 3-Year Plan - Annual Payment			Annual 5-Year Plan - Annual Payment	
	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount			Lump Sum Amount	
	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$5,000
12th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	N/A	N/A	N/A	N/A	N/A	N/A	\$13,450	\$12,688	\$11,545	N/A	N/A
8th Grade	N/A	N/A	N/A	N/A	N/A	N/A	13,325	12,563	11,420	N/A	N/A
7th Grade	N/A	N/A	N/A	N/A	N/A	N/A	13,147	12,385	11,242	\$8,415	\$7,927
6th Grade	N/A	N/A	N/A	N/A	N/A	N/A	12,916	12,154	11,010	8,267	7,779
5th Grade	N/A	N/A	N/A	N/A	N/A	N/A	12,667	11,905	10,762	8,107	7,620
4th Grade	N/A	N/A	N/A	N/A	N/A	N/A	12,375	11,613	10,470	7,921	7,433
3rd Grade	N/A	N/A	N/A	N/A	N/A	N/A	12,044	11,281	10,138	7,708	7,221
2nd Grade	\$354	\$331	\$296	N/A	N/A	N/A	11,714	10,952	9,809	7,498	7,010
1st Grade	344	321	286	N/A	N/A	N/A	11,384	10,621	9,478	7,286	6,798
Kindergarten	333	310	276	\$295	\$275	\$244	11,049	10,287	9,144	7,072	6,584
4 Year Old	323	300	266	286	266	235	10,715	9,953	8,810	6,858	6,370
3 Year Old	313	290	256	277	257	226	10,383	9,620	8,477	6,645	6,158
2 Year Old	304	281	246	268	248	218	10,057	9,295	8,151	6,437	5,949
1 Year Old	294	271	236	260	240	209	9,736	8,974	7,831	6,232	5,744
Newborn	284	261	227	251	231	201	9,420	8,658	7,515	6,029	5,542

2018-2019 Academic Year – Two-Year Community College Plan

Net Investment Return for Present Value of Benefits 6.30%

Interest Rate for Contract Payments 7.00%

University WAT N/A

Community College WAT \$ 3,192

University Tuition Increase Assumption N/A

Community College Tuition Increase Assumption See Table

Bias Load for Universities N/A

Bias Load for Community Colleges 0.0%

Additional Risk Premium 0.0%

Admin Expenses 5.0%

Credit hours granted for each year purchased 31.00

Average Credit Hours Utilized per Semester 11.90

Tuition Payments per year 2 -- approx mid Sept. and mid Feb.

Community College benefits payable for less than 12 credit hours in a semester are based on 1/2 WAT divided by 11 and multiplied by credits reimbursed (accounts for the discount once 12 credit hours are obtained)

Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits (PVB)	2018/2019 Proposed Price	Increase Due to Pricing Floor	PVB Valuation Assumptions	Estimated Margin	2017/2018 Price	Year to Year Increase
12th Grade	2019	8.15%	\$ 8,415	\$ 9,392	\$ -	\$ 8,364	12.29%	\$ 9,179	2.3%
11th Grade	2020	8.15%	8,561	9,555	-	8,262	15.65%	9,342	2.3%
10th Grade	2021	8.15%	8,710	9,722	-	8,160	19.14%	9,510	2.2%
9th Grade	2022	8.15%	8,862	9,891	-	8,061	22.70%	9,679	2.2%
8th Grade	2023	8.15%	8,936	9,974	-	7,962	25.27%	9,764	2.2%
7th Grade	2024	8.15%	8,883	9,915	-	7,865	26.06%	9,711	2.1%
6th Grade	2025	4.15%	8,703	9,714	-	7,769	25.04%	9,519	2.0%
5th Grade	2026	4.15%	8,527	9,517	-	7,674	24.02%	9,331	2.0%
4th Grade	2027	4.15%	8,354	9,324	-	7,580	23.01%	9,147	1.9%
3rd Grade	2028	4.15%	8,185	9,136	-	7,487	22.02%	8,967	1.9%
2nd Grade	2029	4.15%	8,006	8,936	-	7,395	20.84%	8,773	1.9%
1st Grade	2030	4.15%	7,807	8,714	-	7,305	19.29%	8,560	1.8%
Kindergarten	2031	3.35%	7,590	8,472	-	7,216	17.41%	8,328	1.7%
4 Year Old	2032	3.35%	7,380	8,237	-	7,127	15.57%	8,100	1.7%
3 Year Old	2033	3.35%	7,175	8,008	-	7,040	13.75%	7,880	1.6%
2 Year Old	2034	3.35%	6,976	7,786	-	6,954	11.96%	7,665	1.6%
1 Year Old	2035	3.35%	6,782	7,570	-	6,869	10.21%	7,456	1.5%
Newborn	2036	3.35%	6,594	7,360	-	6,785	8.47%	7,253	1.5%

2018-2019 Academic Year – Two-Year Community College Plan (Concluded)

Accounting for an average usage of 11.9 credit hours per semester														
Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits	Lump Sum Single Payment	Monthly Extended Plan Monthly Payment				Monthly 5-Year Plan - Monthly Payment			Monthly 8-Year Plan - Monthly Payment		
					Number of Payments	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
						\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	2019	8.15%	\$ 8,415	\$ 9,392	4	\$2,381	\$1,874	\$1,114	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	2020	8.15%	8,561	9,555	16	626	495	299	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	2021	8.15%	8,710	9,722	28	376	299	183	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	2022	8.15%	8,862	9,891	40	277	221	137	N/A	N/A	N/A	N/A	N/A	N/A
8th Grade	2023	8.15%	8,936	9,974	52	222	177	111	N/A	N/A	N/A	N/A	N/A	N/A
7th Grade	2024	8.15%	8,883	9,915	64	185	148	92	\$195	\$156	\$97	N/A	N/A	N/A
6th Grade	2025	4.15%	8,703	9,714	76	158	125	76	191	152	93	N/A	N/A	N/A
5th Grade	2026	4.15%	8,527	9,517	88	138	109	65	187	148	89	N/A	N/A	N/A
4th Grade	2027	4.15%	8,354	9,324	100	122	96	57	184	144	85	\$126	\$99	\$58
3rd Grade	2028	4.15%	8,185	9,136	112	110	86	50	180	141	81	124	97	56
2nd Grade	2029	4.15%	8,006	8,936	124	100	78	44	176	137	78	121	94	53
1st Grade	2030	4.15%	7,807	8,714	136	92	71	39	172	132	73	118	91	50
Kindergarten	2031	3.35%	7,590	8,472	148	85	65	35	167	127	68	115	88	47
4 Year Old	2032	3.35%	7,380	8,237	160	78	59	31	162	123	64	111	84	44
3 Year Old	2033	3.35%	7,175	8,008	172	73	55	27	158	118	59	108	81	41
2 Year Old	2034	3.35%	6,976	7,786	184	68	51	24	153	114	55	105	78	38
1 Year Old	2035	3.35%	6,782	7,570	196	64	47	22	149	110	51	102	75	35
Newborn	2036	3.35%	6,594	7,360	208	60	44	19	145	106	46	100	73	32

Accounting for an average usage of 11.9 credit hours per semester												
Age/Grade of Beneficiary as of Sept. 1, 2018	Monthly 10-Year Plan - Monthly Payment			Monthly 12-Year Plan - Monthly Payment			Annual 3-Year Plan - Annual Payment			Annual 5-Year Plan - Annual Payment		
	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	N/A	N/A	N/A	N/A	N/A	N/A	\$3,769	\$3,007	\$1,864	N/A	N/A	N/A
8th Grade	N/A	N/A	N/A	N/A	N/A	N/A	3,801	3,039	1,895	N/A	N/A	N/A
7th Grade	N/A	N/A	N/A	N/A	N/A	N/A	3,778	3,016	1,873	\$2,418	\$1,930	\$1,199
6th Grade	N/A	N/A	N/A	N/A	N/A	N/A	3,702	2,939	1,796	2,369	1,881	1,150
5th Grade	N/A	N/A	N/A	N/A	N/A	N/A	3,626	2,864	1,721	2,321	1,833	1,102
4th Grade	N/A	N/A	N/A	N/A	N/A	N/A	3,553	2,791	1,648	2,274	1,786	1,055
3rd Grade	N/A	N/A	N/A	N/A	N/A	N/A	3,481	2,719	1,576	2,228	1,740	1,009
2nd Grade	\$103	\$80	\$45	N/A	N/A	N/A	3,405	2,643	1,500	2,179	1,692	960
1st Grade	100	77	43	N/A	N/A	N/A	3,320	2,558	1,415	2,125	1,637	906
Kindergarten	97	74	40	\$86	\$66	\$35	3,228	2,466	1,323	2,066	1,578	847
4 Year Old	95	72	37	84	63	33	3,139	2,377	1,233	2,009	1,521	789
3 Year Old	92	69	35	81	61	31	3,051	2,289	1,146	1,953	1,465	734
2 Year Old	90	67	32	79	59	28	2,967	2,205	1,062	1,899	1,411	679
1 Year Old	87	64	30	77	57	26	2,885	2,122	979	1,846	1,358	627
Newborn	85	62	27	75	55	24	2,805	2,042	899	1,795	1,307	576

2018-2019 Academic Year – One-Year Community College Plan

Net Investment Return for Present Value of Benefits	6.30%
Interest Rate for Contract Payments	7.00%
University WAT	N/A
Community College WAT	\$ 3,192
University Tuition Increase Assumption	N/A
Community College Tuition Increase Assumption	See Table
Bias Load for Universities	N/A
Bias Load for Community Colleges	0.0%
Additional Risk Premium	0.0%
Admin Expenses	5.0%
Credit hours granted for each year purchased	31.00
Average Credit Hours Utilized per Semester	11.90
Tuition Payments per year	2 -- approx mid Sept. and mid Feb.

Community College benefits payable for less than 12 credit hours in a semester are based on 1/2 WAT divided by 11 and multiplied by credits reimbursed (accounts for the discount once 12 credit hours are obtained)

Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits (PVB)	2018/2019 Proposed Price	Increase Due to Pricing Floor	PVB Valuation Assumptions	Estimated Margin	2017/2018 Price	Year to Year Increase
12th Grade	2019	8.15%	\$ 4,234	\$ 4,726	\$ -	\$ 4,284	10.32%	\$ 4,617	2.4%
11th Grade	2020	8.15%	4,308	4,808	-	4,232	13.61%	4,699	2.3%
10th Grade	2021	8.15%	4,382	4,891	-	4,180	17.01%	4,784	2.2%
9th Grade	2022	8.15%	4,459	4,977	-	4,129	20.54%	4,869	2.2%
8th Grade	2023	8.15%	4,536	5,063	-	4,079	24.12%	4,956	2.2%
7th Grade	2024	8.15%	4,572	5,103	-	4,029	26.66%	4,997	2.1%
6th Grade	2025	4.15%	4,480	5,000	-	3,979	25.66%	4,899	2.1%
5th Grade	2026	4.15%	4,389	4,899	-	3,931	24.62%	4,802	2.0%
4th Grade	2027	4.15%	4,300	4,799	-	3,883	23.59%	4,707	2.0%
3rd Grade	2028	4.15%	4,213	4,702	-	3,835	22.61%	4,614	1.9%
2nd Grade	2029	4.15%	4,128	4,607	-	3,788	21.62%	4,524	1.8%
1st Grade	2030	4.15%	4,037	4,506	-	3,742	20.42%	4,425	1.8%
Kindergarten	2031	3.35%	3,925	4,381	-	3,696	18.53%	4,305	1.8%
4 Year Old	2032	3.35%	3,816	4,259	-	3,651	16.65%	4,187	1.7%
3 Year Old	2033	3.35%	3,710	4,141	-	3,606	14.84%	4,073	1.7%
2 Year Old	2034	3.35%	3,607	4,026	-	3,562	13.03%	3,963	1.6%
1 Year Old	2035	3.35%	3,507	3,914	-	3,519	11.22%	3,854	1.6%
Newborn	2036	3.35%	3,410	3,806	-	3,476	9.49%	3,749	1.5%

2018-2019 Academic Year – One-Year Community College Plan (Concluded)

Accounting for an average usage of 11.9 credit hours per semester														
Age/Grade of Beneficiary as of Sept. 1, 2018	Projected Enrollment Year	Annual Tuition Increase	Present Value of Benefits	Lump Sum Single Payment	Monthly Extended Plan Monthly Payment				Monthly 5-Year Plan - Monthly Payment			Monthly 8-Year Plan - Monthly Payment		
					Number of Payments	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
						\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	2019	8.15%	\$ 4,234	\$ 4,726	4	\$1,198	\$691	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	2020	8.15%	4,308	4,808	16	315	184	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	2021	8.15%	4,382	4,891	28	189	112	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	2022	8.15%	4,459	4,977	40	139	83	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8th Grade	2023	8.15%	4,536	5,063	52	113	68	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7th Grade	2024	8.15%	4,572	5,103	64	95	58	N/A	\$101	\$61	N/A	N/A	N/A	N/A
6th Grade	2025	4.15%	4,480	5,000	76	81	49	N/A	98	59	N/A	N/A	N/A	N/A
5th Grade	2026	4.15%	4,389	4,899	88	71	42	N/A	97	57	N/A	N/A	N/A	N/A
4th Grade	2027	4.15%	4,300	4,799	100	63	37	N/A	95	55	N/A	\$65	\$38	N/A
3rd Grade	2028	4.15%	4,213	4,702	112	57	33	N/A	93	53	N/A	64	37	N/A
2nd Grade	2029	4.15%	4,128	4,607	124	52	29	N/A	91	51	N/A	62	35	N/A
1st Grade	2030	4.15%	4,037	4,506	136	48	26	N/A	89	49	N/A	61	34	N/A
Kindergarten	2031	3.35%	3,925	4,381	148	44	24	N/A	86	47	N/A	59	32	N/A
4 Year Old	2032	3.35%	3,816	4,259	160	41	21	N/A	84	45	N/A	58	31	N/A
3 Year Old	2033	3.35%	3,710	4,141	172	38	19	N/A	82	42	N/A	56	29	N/A
2 Year Old	2034	3.35%	3,607	4,026	184	35	18	N/A	79	40	N/A	54	27	N/A
1 Year Old	2035	3.35%	3,507	3,914	196	33	16	N/A	77	38	N/A	53	26	N/A
Newborn	2036	3.35%	3,410	3,806	208	31	15	N/A	75	36	N/A	51	24	N/A

Accounting for an average usage of 11.9 credit hours per semester												
Age/Grade of Beneficiary as of Sept. 1, 2018	Monthly 10-Year Plan - Monthly Payment			Monthly 12-Year Plan - Monthly Payment			Annual 3-Year Plan - Annual Payment			Annual 5-Year Plan - Annual Payment		
	Lump Sum Amount			Lump Sum Amount			Lump Sum Amount			Lump Sum Amount		
	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000	\$0	\$2,000	\$5,000
12th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10th Grade	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9th Grade	N/A	N/A	N/A	N/A	N/A	N/A	\$1,896	\$1,134	N/A	N/A	N/A	N/A
8th Grade	N/A	N/A	N/A	N/A	N/A	N/A	1,929	1,167	N/A	N/A	N/A	N/A
7th Grade	N/A	N/A	N/A	N/A	N/A	N/A	1,945	1,182	N/A	\$1,245	\$757	N/A
6th Grade	N/A	N/A	N/A	N/A	N/A	N/A	1,905	1,143	N/A	1,219	732	N/A
5th Grade	N/A	N/A	N/A	N/A	N/A	N/A	1,867	1,105	N/A	1,195	707	N/A
4th Grade	N/A	N/A	N/A	N/A	N/A	N/A	1,829	1,067	N/A	1,170	683	N/A
3rd Grade	N/A	N/A	N/A	N/A	N/A	N/A	1,792	1,030	N/A	1,147	659	N/A
2nd Grade	\$53	\$30	N/A	N/A	N/A	N/A	1,756	993	N/A	1,124	636	N/A
1st Grade	52	29	N/A	N/A	N/A	N/A	1,717	955	N/A	1,099	611	N/A
Kindergarten	50	27	N/A	\$45	\$24	N/A	1,669	907	N/A	1,068	581	N/A
4 Year Old	49	26	N/A	43	23	N/A	1,623	861	N/A	1,039	551	N/A
3 Year Old	48	25	N/A	42	22	N/A	1,578	816	N/A	1,010	522	N/A
2 Year Old	46	23	N/A	41	21	N/A	1,534	772	N/A	982	494	N/A
1 Year Old	45	22	N/A	40	19	N/A	1,491	729	N/A	955	467	N/A
Newborn	44	21	N/A	39	18	N/A	1,450	688	N/A	928	440	N/A

SECTION C

VALUATION METHODS AND ASSUMPTIONS

2018 Valuation Methods and Assumptions

All actuarial assumptions are estimates of future experience, not observations of estimates inherent in market data. The rationale for the assumptions are shown in our annual letter to the Board reviewing assumptions (correspondence dated June 13, 2018). Additionally, the board approved alternate pricing assumptions for Senior College/University Plans (Proposed Assumptions 2 from the correspondence dated July 23, 2018). Changes to the assumptions are described in that report.

Assumed Rate of Return:

Price Inflation – 2.25% per year

Net Investment Return for Present Value of Benefits – 6.30% per year

Interest Charge for Payment Plan – 7.00% per year

Assumed Rate of Tuition Increases

	<u>Valuation Assumptions</u>	<u>Pricing Assumptions</u>
4-Year Senior College/Universities	5.50% for all future years.	8.50% for first 6 years; 4.55% for next 6 years; 3.15% thereafter.
2-Year Community Colleges	5.00% for all future years.	8.15% for first 6 years; 4.15% for next 6 years; 3.35% thereafter.

Utilization of Credits: Members are expected to matriculate on or after the valuation date and are expected to utilize 25.6 credits per year at the University level and 23.8 credits per year at the Community College level until they have exhausted all credits.

Pricing Methodology: Based on Weighted Average Tuition (WAT) rate increased to assumed year of payment, based on tuition rate increase assumption and discounted to payment date based on net investment return assumption. Payments are expected to be made twice per year: once in mid-September and the other in mid-February.

Weighted Average Tuition (WAT) for the 2018/2019 Academic Year:

4-Year Senior College/Universities – \$8,283

2-Year Community Colleges – \$3,192

Bias Load: Pricing for credits utilized was increased by a load for increased likelihood of Plan participants selecting more expensive in-state schools:

Senior Colleges and Universities – 2.6%

Community Colleges – 0.0%

Additional Risk Premium: Pricing for credits utilized in Senior Colleges and Universities was increased by 2.0%.

2018 Valuation Methods and Assumptions

Administrative Expenses: Pricing was increased by 5.0%.

Refunds: None.

Mortality: None.

Benefits for Less than 12 Credits Per Semester:

Senior Colleges and Universities – $\frac{1}{2}$ WAT divided by 12 multiplied by credits used.

Community Colleges – $\frac{1}{2}$ WAT divided by 11 multiplied by credits used.

Credits Acquired for Each Semester Purchased: 15.5 for both Senior Colleges/Universities and Community Colleges.

APPENDIX

BOARD'S FUNDING POLICY



Mississippi Prepaid Affordable College Tuition Program Funding Policy

Introduction

The purpose of this Funding Policy is to record the funding objectives and policy set by the Board of Trustees (Board) for the Mississippi Prepaid Affordable College Tuition Program (MPACT). The Board establishes this Funding Policy to:

- 1) ensure that the trust will have sufficient funds to pay benefits when due;
- 2) provide guidance with establishing risk reserves for pricing of future contracts;
- 3) provide the Board with established guidelines for requesting funds from the State under the full faith and credit backing of the State of Mississippi for benefits associated with Legacy contracts.

In 2012, the College Savings Plans of Mississippi Board chose to close the Program to new participants, pending a review of methods and assumptions used to price contracts and perform actuarial valuations. After a completion of this review, the Board in 2013/2014 decided to re-open the program to new participants under new terms and using updated methods and assumptions. New contracts are to start selling effective with the 2014/2015 academic year. The program will be bifurcated in the following manner:

- 1) The program in place when MPACT was closed in 2013, including all contracts sold prior to that time and all benefits/liabilities associated with such contracts, will be referred to as the Legacy MPACT Program (or Legacy);
- 2) The new program, including all contracts sold after the program is re-opened and all benefits/liabilities associated with such contracts will be referred to as the Horizon MPACT Program (or Horizon);
- 3) Pricing for the Horizon program will be determined in a manner that all benefits promised to contract holders will be included in the determination of the pricing of such contracts;
- 4) Pricing for the Horizon program will include a surcharge for risk reserving associated with Horizon contracts; and
- 5) Pricing of Horizon contracts will not include a surcharge for paying off the Legacy unfunded liabilities.

Funding Goals

1. The unfunded liability attributable to existing contracts (Legacy) will not be paid by future contract purchases (Horizon); and
2. The pricing of future contracts (Horizon) will be reflective of future expected costs for each participant purchasing a new contract with a reserve for adverse experience.

Funding Target

1. Legacy

- a. The Board has established a funding target of 100% for the Legacy program.

2. Horizon

- a. The Board has established a funding target of 115% for the Horizon program.



Board Actions if Target is Not Met

1. Legacy

- a. In any year that the funded status falls below the funding target (100%), the MPACT Board will request 10% of the unfunded amount as a special appropriation from the legislature; and/or
- b. If the program is projected to be insolvent in less than 5 years, the Board will increase the appropriation request to 20%.

2. Horizon

- a. In any year that the funded target is not met, but is within 200 basis points, then the explicit risk premium for new contracts will be 3% for 4-year institutions and 0% for 2-year institutions.
- b. If the funded target is not met by at least 200 basis points but less than 500 basis points, then the explicit risk premium for new contracts will be increased to 5% for 4-year institutions and 2% for 2-year institutions.
- c. If the funded target is not met by at least 500 basis points, then the explicit risk premium for new contracts will be increased to 10% for 4-year institutions and 7% for 2-year institutions.

3. Full Faith and Credit

- a. Both Legacy and Horizon Programs are backed by Full Faith and Credit of the state of Mississippi. It is the responsibility of the Mississippi Legislature to address funding shortfalls existing in either program.

Board Actions if Target is Exceeded

1. Legacy

- a. In any year that the funded status exceeds the target by 1500 basis points (in excess of 115% funded), a portion of previous state contributions will be returned to the General Fund. The portion returned will not exceed the amounts contributed and will be further limited so that the funded status does not fall below 115%.

2. Horizon

- a. In any year that the funded target is exceeded by less than 200 basis points, then the explicit risk premium for new contracts will be 3% for 4-year institutions and 0% for 2-year institutions.
- b. If the funded target is exceeded by at least 200 basis points but less than 500 basis points, then the explicit risk premium for new contracts will be set to 1% for 4-year institutions. The implicit premium for 2-year institutions will be reviewed and may be lowered.
- c. If the funded target is exceeded by at least 500 basis points, then the explicit risk premium for new contracts will be set to 0% for 4-year institutions. The implicit premium for 2-year institutions will be reviewed and may be lowered.
- d. If the funded target is exceeded by at least 1000 basis points, then the implicit risk premium (if any) will be reviewed and possibly lowered for both 4-year and 2-year institutions.



Board Review of Funding Policy

The Board will informally review this policy annually. The Board will formally review this policy every two years until 2020 and every five years, thereafter.

Measurement of Funding Target

The Board will measure the funding target in an annual valuation. The target will be the funding status, determined as follows:

The funded status will be a fraction, whose numerator is the actuarial value of assets plus the present value of future contract payments for contracts already sold as of the valuation date;

The denominator will be the present value of future expected benefit payments and expenses.

Present values and expected payments will be based on the actuarial assumptions adopted by the Board for purposes of the annual actuarial valuation.

For this purpose, the actuarial value of assets will be a market related value that recognizes investment return above or below the assumed investment return over a 3 year period. In no event will the actuarial value of assets be less than 80% of market or more than 120% of market.

Glossary

1. **Actuarial Liability (AL):** The actuarial present value of future expected plan benefits and expenses.
2. **Actuarial Assumptions:** Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.
3. **Actuarial Value of Assets:** The value of current plan assets recognized for valuation purposes (generally based on a phased-in recognition of all or a portion of market related investment return) plus the present value of future contract payments for contract already initiated as of the valuation date. Sometimes referred to as Funding Value of Assets.
4. **Market Value of Assets:** The fair value of plan assets as reported in the plan's audited financial statements.
5. **Unfunded Actuarial Liability (UAL):** The positive difference, if any, between the actuarial liability and valuation assets. Sometimes referred to as "unfunded accrued liability."